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SENATE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

STATEMENT OF
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BEFORE THE
STRATEGIC FORCES SUBCOMMITTEE
OF THE
SENATE ARMED SERVICES COMMITTEE
SPACE HEARING

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Mr. Chairman, distinguished members of the Committee, as the Director of Warfare Integration on the OPNAV Staff, I am honored to appear before you today to address Navy space activities. I am the Navy's resource and requirements sponsor for Space. This sponsorship includes the Mobile User Objective System (MUOS), the new Joint Narrowband Military Satellite Communication System. I am also the Navy's Subject Matter Expert for Space, responsible for reviewing and approving navy space systems being reviewed by the Joint Requirements Oversight Committee (JROC) as part of the Joint Capabilities Integration Development System (JCIDS). The committee has asked several specific questions which I would like to address, one of which is a request for Navy's thoughts on the organization and management of space, including Navy's role therein.

Space Organization and Management, and Navy's Role in Space

Space systems are a critical enabler for maritime operations. The Navy has a long and proud history in space, having developed a number of technological breakthroughs. The list of Navy advances in space is expansive and includes: the first space communications used for operations; the first controllable space launch vehicle; the first satellite tracking system; the first successful electronic intelligence reconnaissance satellite; the first space object tracking system; the first demonstration of on-orbit atomic clocks; the first military broadcast satellite; and the first astronauts to orbit the earth, orbit the moon and crew the Space Shuttle. The 20 February interception of a non-functioning National Reconnaissance Office (NRO) satellite illustrates Navy's continued critical role in Space and Space Control. The Navy AEGIS warship, USS LAKE ERIE (CG-70), fired a single modified tactical Standard Missile-3 (SM-3), hitting the satellite approximately 133 nautical miles over the Pacific Ocean as it traveled in space at more than 17,000 miles per hour.

Today, the Air Force, as the Department of Defense (DoD) Executive Agent for Space (EA) has DoD-wide responsibilities for planning and acquisition of most DoD major Defense space acquisitions. In addition, the National Reconnaissance Office (NRO) is responsible to both the Secretary of Defense and the Director of National Intelligence for national space reconnaissance activities. While the Navy continues to serve as the Program Manager for DOD narrowband UHF satellite communications systems, which includes the new Mobile User Objective System (MUOS) and the UHF Follow-on system, and conducts smaller space-based experiments, most large-scale national security satellite programs will be developed through the Space EA and NRO. With limited funding and more narrowly defined scope, Navy has focused energy on leveraging existing space capabilities and aggressive engagement within the requirements and acquisition processes to ensure maritime operational needs are met.

Satellites provide global access and enable the Navy to establish global presence. The process for designing, building, launching and operating modern satellite systems has increasingly become both a lengthy and an expensive proposition lasting decades, meaning a new satellite program that is currently in the concept phase could remain in service well into the 2020-2030 timeframe. Unlike other major DOD programs, however, satellites cannot be modified or repaired once they are placed into orbit. Due to the long lead times involved, it is therefore critical that naval requirements and maritime missions be factored into the pre-launch design and planned in-orbit operation of all future satellite systems being considered for acquisition through the DOD Executive Agent for Space, the NRO and the NOAA. Without active Navy involvement today in ongoing deliberations over future satellite programs, the Navy risks operating in future scenarios with multi-billion dollar National Security Space systems sub-

optimized for the maritime environment, which is increasingly important as Maritime Domain Awareness requirements are developed.

The Navy remains heavily reliant on space systems to conduct its wartime and humanitarian missions. A wide array of national, joint and commercial satellites currently provide Navy commanders with essential communication capabilities, position, navigation and timing support, missile warning, meteorological data, and over-the-horizon surveillance and reconnaissance capabilities on a worldwide basis. Future U.S. satellite programs are now being developed that could provide additional benefit and capabilities to Navy warfighters. Many of these programs, however, face technological and budgetary hurdles which could force future capability trade-offs affecting the maritime environment and could ultimately impact their utility to the Navy. For these reasons, the Navy will actively engage with key national and joint space-related entities at the appropriate levels to ensure current and future Navy needs in space are identified, understood, resourced and protected. This requires close cooperation between the Navy and various space-related entities within the Department of Defense (DOD), the National Intelligence Community (IC), the National Oceanographic and Atmospheric Administration (NOAA), as well as those commercial partners who develop and manage satellite systems.

The various U.S. satellites and space support systems that constitute National Security Space generally fall under six distinct mission areas, all of which directly or indirectly support Navy operations. Furthermore, virtually each of these mission areas involves one or more future satellite systems currently in the design or development phase. The six mission areas are Intelligence/Surveillance/Reconnaissance, Communications, Position/Navigation/Timing (PNT), Space Control, Ballistic Missile Warning/Defense and Meteorological and Oceanographic (METOC). One of the primary goals contained within the Department of Navy Space Policy is

to shape the outcome of joint deliberations on future space capabilities these mission areas to maximize combat effectiveness and to ensure supremacy of the naval force. Within the Navy, various space-related functions and responsibilities are distributed among different commands, but jointly constitute a functional “Navy Space Team” which works collaboratively to advance Navy’s many goals in space. The Navy Space Team is composed of several Navy organizations that span the full spectrum of Navy warfighting and have key roles to play in advancing the Navy’s role in space:

- a. The Deputy CNO for Communication Networks (CNO N6) is responsible for leading the overall Navy Space Team, developing Navy space requirements, making resource recommendations, funding designated space acquisition programs, and coordinating with the National Security Space Office
- b. The Deputy CNO for Manpower, Personnel, Training and Education (CNO N1) is responsible for managing and developing a core group of active duty and reserve enlisted, officer, and civilian personnel with specialized space expertise known as “Navy Space Cadre”
- c. The Director of Naval Intelligence (CNO N2) is responsible for incorporating space capabilities into the larger Navy-wide ISR strategy, advocating Navy’s space-related requirements within IC and joint ISR programs, and representing the OPNAV staff within key IC and joint space-related forums.
- d. The Deputy CNO for Integration of Capabilities and Resources (CNO N8) is responsible for making resource decisions on relevant Navy space assets, and incorporating space capabilities into Navy campaign/mission modeling and simulation efforts;

- e. The Oceanographer of the Navy (CNO N84) is responsible for coordinating space-related portions of the Navy's Oceanography and Navigation programs with appropriate commands, agencies and commands outside the Navy;
- f. The Office of Naval Research (ONR) is designated as the Navy Space Scientific and Technical (S&T) Executive.
- g. The Program Executive Office Space Systems (PEO Space) is responsible for acquiring space systems for the Navy, and for working with PEO Command, Control, Communications, Computers and Intelligence (C4I) and Space for acquiring Navy space-related terminals

A number of other space-related Navy organizations and offices play key roles in supporting the primary Navy Space Team. These key organizations include:

- a. Navy-NRO Coordination Group (NNCG): Responsible for coordinating Navy space-related issues between the OPNAV Staff and key Navy personnel working within the NRO, and linking ongoing Navy-related activities at the NRO with the Deputy Assistant Secretary of the Navy (DASN) for C4I/Space
- b. Navy Tactical Exploitation of National Capabilities (TENCAP) Office: Responsible for conducting rapid prototyping involving national reconnaissance satellites and related systems in support of Navy operations
- c. Naval Research Laboratory's Naval Center for Space Technology (NCST): Exploits and develops space-related technologies in support of DOD, Navy and other agencies

Additionally, the Navy maintains a key Flag-level joint billet at the National Reconnaissance Office. This senior officer oversees a team of Navy Space Cadre members, who

collectively provide invaluable support to the Navy Space Team on a number of space-related issues.

MUOS

The committee has requested a clearer understanding of the Mobile User Objective System (MUOS). The Navy's major space segment responsibility to the joint community is the narrowband satellite communications constellation. Today it consists of UHF Follow-on (UFO) and two residual Fleet Satellites (FLTSATs) and one Leased Satellite (LEASAT) which will begin to be replaced by MUOS in 2010. MUOS will provide communications-on-the-move at high data rates (up to 64 kbs per access) to disadvantaged users such as handheld terminals, aircraft, missiles, UAVs, and remote sensors. Additionally, MUOS will provide these capabilities in such challenging environments as double canopy foliage, urban environment, and high sea state. MUOS will bring a four-fold increase in the number of accesses (1997 vice 500) and a twenty-fold increase in throughput (39.2 Mbps, total system capacity vice 2 Mbps) in comparison to the legacy UFO constellation. MUOS is the common denominator for command and control providing the capability to communicate from tactical to theater levels and between defense and non-defense agencies. MUOS will allow a more comprehensive and coordinated approach to regional engagement, providing the capability to synchronize efforts with other services, agencies, and allied nations.

MUOS is critical to satisfying the demand for tactical satellite communications. During OPERATIONS ENDURING FREEDOM and IRAQI FREEDOM, UFO, FLTSAT, and LEASAT 5 were only able to support 80% of the narrowband tactical UHF satellite communication requirements. Additionally, in the 2010 timeframe, LEASAT 5 will reach its end of service life, and the UFO constellation is expected to reach an unacceptable level of

availability in May 2009. We have a mitigation plan to minimize the operational impact of a potential gap in capability (7 operational satellites vice the required 8) before MUOS is operational and MUOS-capable terminals are available. It includes the use of commercial bandwidth and the dynamic management of existing bandwidth as mentioned previously. A “Sources Sought for Additional UHF Capabilities” was released on 09 August 2007 with the objective of supplementing the current UHF SATCOM resources with additional commercial services. Of the six options presented by four vendors in response to this RFI, Navy chose Intelsat’s Skynet leased services and is initiating a competition for a hosted payload option. Navy has identified funding in PB09 to fund both of these mitigation plans. Intelsat’s Skynet services will supplement UHF resources in FY09-FY10 while the hosted payload option will tentatively be available beginning in 2010. Today, UFO supports approximately 500 simultaneous accesses worldwide. Based on evolving future war fighting concepts in support of the Guidance for Development of Forces (GDF), UHF SATCOM access requirements are expected to grow by at least a factor of four and MUOS, as designed, will be able to support that requirement.

The MUOS program is currently preparing for the October 2009 Follow-On Buy Decision. MUOS’ advanced capabilities can only be realized with the fielding of MUOS-capable Joint Tactical Radio System (JTRS) terminals or by upgrading existing UHF legacy software programmable terminals to MUOS capability.

Lastly, the committee asked for Navy’s thoughts on Space Protection Strategies. The Navy continues to work with U.S. Strategic Command, the Joint Staff and other services to ensure appropriate means of Space Control Protection are addressed systematically as space systems are being developed. Navy supports Space Control Protection becoming a mandatory

Joint Capabilities Integration Development System (JCIDS) Key Performance Parameter (KPP).

This will ensure the warfighter and the Joint Requirements Oversight Council (JROC) understand and approve the trade offs between advance performance and enduring protection.

Navy also advocates the National Security Space Office standing up a Space Control Functional Integration Office (FIO) using the current Communications FIO as the model.

Summary

Navy's mission of keeping the air and sea lanes open and ensuring the security of our citizens at home and abroad requires a global reach and persistent presence. We must be constantly ready, whether it is to deliver on a mission of mercy or more lethal measures to respond to a specific threat. Our ability to respond, as well as work with our coalition and other maritime partners, will depend on space capabilities for the necessary flexibility and speed to support our worldwide responsibilities. Navy's ability to leverage DoD and IC space capabilities, and to have an impact on future space developments is critical in ensuring its ability to successfully conduct maritime operations and in fulfilling Navy missions.

We look forward to delivering MUOS for the joint warfighter. Finally, we intend to be an important contributor toward the development and implementation of space protection strategies.

Thank you for the opportunity to share our efforts with you today.